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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,549	07/21/2003	Peter Jaenecke	Q76259	3897

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EXAMINER	
TRAN, KHANH C	

ART UNIT	PAPER NUMBER
2611	

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05/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Best Available Copy

Office Action Summary	Application No.	Applicant(s)	
	10/622,549	JAENECKE ET AL.	
	Examiner	Art Unit	
	Khanh Tran	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 March 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Amendment filed on 03/16/2007 has been entered. Claims 1-11 are pending in this Office action.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 2, 4 and 7-10 have been considered but are moot in view of the new ground(s) of rejection.

3. Amendment to the Specification and Drawings has been reviewed and entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 5 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claimed limitations "*said scaling factors for said train of pulses guaranty that an average power of the clipped signal is higher than said predefined threshold value*" lacks of support in the original disclosure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-4 and 6-9 are rejected under 35 U.S.C. 102(a) as being anticipated by Tellado et al. U.S. Patent 6,314146 B1.

Regarding claim 1, Tellado et al. invention is directed methods and systems for reducing the peak to average power ratio of a multi-carrier signal. Tellado et al. teachings reduce the peak to average power ratio of a signal ensures that amplifiers and transmitters are not saturated, causing loss of data; see column 3 lines 5-15.

In column 9 lines 15-35, as shown in FIG. 8, the time domain signal x(t) has several peaks 130-133. The peaks 130-133 can be reduced by adding or subtracting an appropriately scaled impulse function $\delta(t)$ at those peak time values. The impulse function, however, must be constructed from the peak reduction frequencies and an approximate impulse must be used, p.

Tellado et al. teaches in FIG. 10c illustrates approximation of an impulse p(t) were to be applied to x(t) of FIG. 8, p(t) would be inverted and shifted to t-2 in order to cancel out the first peak 130. The scaling and time shifting of p scales and phase shifts the values of P, and therefore C. C, which is a linear combination of P, will have zero values at the non-peak reduction frequencies. However, Tellado et al. further elaborates that reducing one or more peaks may cause the resulting waveform to exceed the maximum value at other positions. Therefore, the process may be repeated with the resulting X^{clip} +c to achieve a new x^{clip} with a PAR that is satisfactory. Hence, Tello et al. foregoing teachings address the claimed limitations "*scaling factor for one peak taking into account an influence on said peak which occurs if, at least, one other peak of said group is applied a scaling factor*".

Regarding claim 2, as recited in claim 1 rejection, the distance would influence the scaling and time shifting of p, which could cause the resulting waveform to exceed the maximum value at other positions.

Regarding claim 3, in column 10 lines 5-35, Tellado et al. teaches a method of clipping any number of peaks in several iterations until the resulting X^{clip} +c to achieve a new x^{clip} with a PAR that is satisfactory. Also, disclosed in the recited same column, the scaled factor of one peak is calculated as 1.2α.

Regarding claim 4, as recited in claim 1 rejection, the process may be repeated with the resulting X^{clip} +c to achieve a new x^{clip} with a PAR that is satisfactory; see column 10 lines 5-35.

Regarding claim 6, as recited in claim 1 rejection, in column 10 lines 5-35, Tellado et al. teaches a method of clipping any number of peaks in several iterations until the resulting X^{clip} +c to achieve a new x^{clip} with a PAR that is satisfactory.

Regarding claim 7, as disclosed in column 1 lines 15-25, Tellado et al. invention relates more specifically to reducing peak to average power ratios in single carrier and multi-carrier communication systems. In view of that, in the case of multi-carrier communication systems, the signal comprises a plurality of single carrier signals as claimed in the application claim.

Regarding claim 8, claim is rejected on the same ground as for claim 1 because of similar scope.

Regarding claim 9, in column 32 lines 40-60, Tellado et al.teaches in another embodiment, distorter 838 may perform clipping on the discrete time sequence x(n) rather than on the continuous time signal x(t) and distorter 838 may be embodied in a *digital signal processor*, a central processing unit or other type of computational device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tellado et al. U.S. Patent 6,314146 B1 as applied to claim 8 above, and further in view of Ma et al. U.S. 6,654,427 B1.

Regarding claim 10, Tellado et al. does not expressly disclose the multi-carrier communication transmitter being used in a base station of a CDMA radio communication network.

Ma et al. discusses in another US Patent that in communication systems where signals have a large range of amplitudes, components such as power amplifiers have to maintain linearity over a large dynamic range to avoid generating nonlinear distortion of the input signal and spectral adjacent channel power. For example in signals transmitted in the standard identified as EIA/TIA/IS-95 (Electronic Industries Association/Telecommunications Industry Association/Interim Standard 95) entitled "Mobile Station-Base Station Compatibility Standard for Dual-Mode Wideband Spread Spectrum Cellular System, Mar. 1993 ("IS-95"), the peak to average power ratio (PAR) for a single loaded code division multiple access (CDMA) 1.25 MHz carrier is about 11.3

dB measured at 10.sup.-4 peaking probability (indicating a 1/10,000 chance that a peak exceeds a threshold value for example of 8.5 dB above the average power).

Because Tellado et al. teachings address the PAR issue, one of ordinary skill in the art at the time the invention was made would have motivated to implement Tellado et al. apparatus in a CDMA mobile station – base station system.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Beukema U.S. Patent 5,727,026 discloses "Method and apparatus for peak suppression using complex scaling values".

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCT

Khanh Tran

05/23/2007
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